

MATERIAL SAFETY DATA SHEET

ARCOJET® FUEL A

DMS 1877

MSDS No.

APPC 463

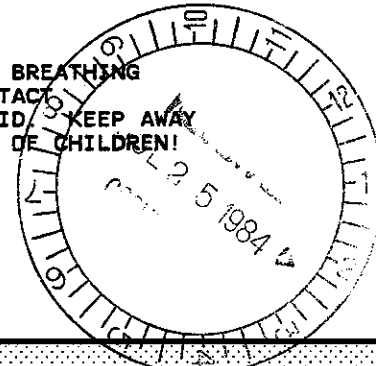
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ARCO PETROLEUM PRODUCTS COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
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LOS ANGELES, CALIFORNIA 90071

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product

I. General		
Trade Name ARCOJET FUEL A		Telephone Numbers EMERGENCY 800/424-9300 CHEMTREC 312/333-3000 COMPANY 803-645-2726 John Moraco John Wofford
Other Names JET FUEL A; JP-1 JET FUEL; AVIATION TURBINE FUEL JET A (DEFINED BY ASTM D-1655).		
Chemical Family PETROLEUM HYDROCARBONS	DOT Hazardous Materials Proper Shipping Name FUEL, AVIATION, TURBINE ENGINE	
Generic Name PETROLEUM DISTILLATE FUEL	DOT Hazard Class COMBUSTIBLE LIQUID	
CAS No. 8008-20-6*	Company ID No. 1024910249	UN/NA ID No. UN 1863
II. Summary of Hazards		
<p>DANGER LIQUID IS HARMFUL OR FATAL IF SWALLOWED OR ASPIRATED. AVOID BREATHING MIST OR VAPORS. AVOID PROLONGED OR REPEATED SKIN CONTACT. MODERATELY COMBUSTIBLE! OSHA/NFPA CLASS-II COMBUSTIBLE LIQUID. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME! KEEP OUT OF REACH OF CHILDREN! FOR SPECIAL PRECAUTIONS ON "SWITCH LOADING", SEE SECTION XI.</p> 		
III. Fire and Explosion		
Flash Point (Method) AP 130° F (D-56)	Autoignition Temperature (Method) AP 400° F (EST.)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure Lower AP 0.7 Upper AP 5.0
Unusual Fire and Explosion Hazards MODERATELY COMBUSTIBLE! WHEN HEATED ABOVE THE FLASH POINT, THIS MATERIAL WILL RELEASE FLAMMABLE VAPORS WHICH IF EXPOSED TO A SOURCE OF IGNITION CAN BURN OR BE EXPLOSIVE IN CONFINED SPACES. MISTS OR SPRAYS MAY BE FLAMMABLE AT TEMPERATURES BELOW THE NORMAL FLASH POINT. FOR "SWITCH LOADING" PROCEDURES, SEE SECTION XI.		
Extinguishing Media FOAM, DRY CHEMICAL, HALON, CO2, AND WATER FOG.		
Special Firefighting Procedures FOR FIRES INVOLVING THIS MATERIAL, DO NOT ENTER ANY ENCLOSED OR CONFINED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT. THIS MAY INCLUDE SELF-CONTAINED BREATHING APPARATUS TO PROTECT AGAINST THE HAZARDOUS EFFECTS OF COMBUSTION PRODUCTS AND OXYGEN DEFICIENCIES. COOL TANKS AND CONTAINERS EXPOSED TO FIRE WITH WATER.		

IV. Health Hazards

Primary Hazard	INGESTION OF LIQUID LEADING TO ASPIRATION INTO THE LUNGS AND POSSIBLE CHEMICAL PNEUMONIA.
ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS
Inhalation	PROLONGED EXPOSURE TO VAPORS OF THIS MATERIAL MAY CAUSE SYMPTOMS OF CENTRAL NERVOUS SYSTEM DEPRESSION. (SEE "EFFECTS OF OVEREXPOSURE" BOX BELOW.)
Eye Contact	EYE IRRITATION MAY RESULT FROM CONTACT WITH LIQUID AND/OR VAPORS.
Skin Absorption	NO SIGNIFICANT SYSTEMIC EFFECTS ARE EXPECTED UNDER CONDITIONS OF NORMAL USE.
Skin Irritation	SKIN IRRITATION LEADING TO DERMATITIS MAY RESULT FROM PROLONGED OR REPEATED SKIN CONTACT.
Ingestion	INGESTION: NAUSEA, VOMITING, DIARRHEA, RESTLESSNESS. ASPIRATION: CHEMICAL PNEUMONIA.
Effects Of Overexposure	INHALATION-----MILD DEPRESSION, HEADACHE, NAUSEA, CONVULSIONS, LOSS OF CONSCIOUSNESS, AND DEATH. SKIN CONTACT--DERMATITIS. ASPIRATION----CHEMICAL PNEUMONIA.

V. Protective Equipment

Respiratory	THIS MATERIAL IS NOT EXPECTED TO PRESENT A RESPIRATORY HAZARD BECAUSE OF ITS LOW VAPOR PRESSURE. WHERE EXCESSIVE VAPORS OR MIST RESULT FROM CONDITIONS OF USEAGE, NIOSH/MSHA APPROVED RESPIRATORY EQUIPMENT MUST BE WORN.
Ventilation	USE ADEQUATE VENTILATION TO KEEP VAPOR CONCENTRATIONS OF THIS MATERIAL BELOW APPLICABLE STANDARD(S). (SEE SECTION VI.-OCCUPATIONAL EXPOSURE LIMITS.)
Eye	EYE PROTECTION (CHEMICAL-TYPE GOGGLES AND/OR FACE SHIELD) SHOULD BE WORN WHENEVER THE POSSIBILITY EXISTS FOR EYE CONTACT DUE TO SPLASHING OR SPRAYING LIQUID. CONTACT LENS SHOULD NOT BE WORN.
Skin	AVOID PROLONGED OR REPEATED SKIN CONTACT. IF CONDITIONS OR FREQUENCY OF USE PRESENT DANGER OF EXPOSURE, CLEAN AND IMPERVIOUS PROTECTIVE CLOTHING SUCH AS GLOVES, APRON, BOOTS, AND FACIAL PROTECTION SHOULD BE WORN.
Other	USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USE OF TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. DISCARD FUEL-SOAKED LEATHER SHOES AND GLOVES.

VI. Occupational Exposure Limits

1.	Substance	Source	Date
	KEROSENE (DHEW PUBLICATION 77-192)	NIOSH	1977
Exposure Limit Value/Time		Short Term Limit/Time	Peak Limit
100 MG/M3 / 10 HOURS		1800 MG/M3 / 15 MINUTES	NOT ESTABLISHED
2.	Substance	Source	Date
Exposure Limit Value/Time		Short Term Limit/Time	Peak Limit

**VII. Emergency and First Aid**

Inhalation	IMMEDIATELY REMOVE FROM CONTAMINATED AREA TO FRESH AIR. FOR RESPIRATORY DISTRESS, GIVE OXYGEN OR ADMINISTER CPR (CARDIOPULMONARY RESUSCITATION), IF NECESSARY. MUST OBTAIN PROMPT MEDICAL ATTENTION.
Eye Contact	FLUSH WITH CLEAN LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES. IF IRRITATION PERSISTS, OBTAIN MEDICAL ATTENTION.
Skin Contact	IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH AFFECTED AREA THOROUGHLY WITH SOAP AND WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. WASH CLOTHING THOROUGHLY BEFORE REUSE, BUT DISCARD CONTAMINATED LEATHER GOODS.
Ingestion	DO NOT INDUCE VOMITING, SINCE ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA. MUST OBTAIN MEDICAL ATTENTION PROMPTLY.
Note to Physician	TOXIC SIGNS AND SYMPTOMS MAY FOLLOW LIQUID CONTACT WITH THE SKIN OVER LARGE AREAS OF THE BODY, INHALATION OF VAPORS, OR INGESTION.

VIII. Spill and Disposal

Precautions if Material is Spilled or Released

CONTAIN SPILL. SAFELY STOP FLOW OF SPILL. SPILL MAY CREATE SLIPPING HAZARDS. EVACUATE ALL NON-ESSENTIAL PERSONNEL. IN URBAN AREA, CLEANUP AS SOON AS POSSIBLE; IN NATURAL ENVIRONMENTS, CLEANUP ON ADVICE FROM ECOLOGISTS. EQUIP CLEANUP CREWS WITH PROPER PROTECTIVE EQUIPMENT. NOTIFY THE NATIONAL RESPONSE CENTER (800/424-8802) AND COMPLY WITH ALL APPLICABLE LAWS. THE SPILLED MATERIAL AND ANY WATER OR SOIL WHICH IT HAS CONTACTED MAY BE HAZARDOUS TO ANIMAL/AQUATIC LIFE.

Waste Disposal Methods

MAXIMIZE PRODUCT RECOVERY FOR REUSE PRIOR TO DISPOSAL. UNUSED LIQUID PRODUCT IS LIKELY AN EPA "IGNITABLE HAZARDOUS WASTE" (D001). USE APPROVED TREATMENT, TRANSPORTERS, AND DISPOSAL SITES IN COMPLIANCE WITH ALL APPLICABLE LAWS. IF SPILL IS INTRODUCED INTO A WASTEWATER SYSTEM, THE CHEMICAL AND BIOLOGICAL OXYGEN DEMAND WILL LIKELY INCREASE. PROPERLY ACCLIMATE THE BIOMASS TO THE MATERIAL. POTENTIAL DISPOSAL METHODS INCLUDE INCINERATION, LAND FARMING, AND LAND DISPOSAL, IF PERMITTED.

IX. Components (This may not be a complete list of components)

Component Name	CAS No.		Composition amount (Vol.) (See Note on Page 4)
MIXTURE OF ADDITIVES (METAL DEACTIVATOR, ANTIOXIDANTS, ETC.)		LT	0.01 PERCENT
KERDSINE (PETROLEUM)	8008-20-6*	AP	100 PERCENT

Compositions given are typical values, not specifications.

X. Physical and Chemical Data

Boiling Point 325° TO 572° F	Evaporation Rate (Ratio of Time) (ETHER = 1) GT 1	Dry Point N/AV
Freezing Point LT -40° F	Vapor Pressure (REID-PSIA AT 100° F) LT 0.1	Volatile Characteristics SLIGHT
Specific Gravity (H₂O = 1 at 39.2° F) AP 0.81	Vapor Sp. Gr. (Air = 1.0 at 60°-90° F) AP 6	Solubility in Water NEGLIGIBLE
Hazardous Polymerization NOT EXPECTED TO OCCUR	Viscosity Units, Temp., Method AP 2 CST AT 100° F D-445	Stability STABLE
Other Physical and Chemical Properties	SULFUR CONTENT = LT 0.3 WT.%; VISCOSITY @ -4F. = LT 8 CENTISTOKES. MW ≈ 210	
Appearance and Odor	NEARLY COLORLESS TO LIGHT AMBER-COLORED LIQUID; KEROSENE ODOR.	
Conditions to Avoid	HEAT AND IGNITION SOURCES.	
Materials to Avoid	STRONG ACIDS, ALKALIES, AND OXIDIZERS SUCH AS LIQUID CHLORINE AND OXYGEN.	
Hazardous Decomposition Products	BURNING OR EXCESSIVE HEATING MAY PRODUCE CARBON MONOXIDE AND OTHER HARMFUL GASES/VAPORS INCLUDING OXIDES AND/OR OTHER COMPOUNDS OF SULFUR.	

XI. Additional Precautions

Handling and Storage	SPECIAL SLOW LOAD PROCEDURES FOR "SWITCH LOADING" MUST BE FOLLOWED TO AVOID THE STATIC IGNITION HAZARD THAT CAN EXIST WHEN THIS MATERIAL IS LOADED INTO TANKS PREVIOUSLY CONTAINING GASOLINE OR OTHER LOW FLASH POINT HYDROCARBON PRODUCTS. (SEE A.P.I. PUBLICATION 2003.) KEEP CONTAINERS CLOSED AND AWAY FROM HEAT AND IGNITION SOURCES! ALL ELECTRICAL EQUIPMENT IN AREAS WHERE PRODUCT IS STORED/HANDLED SHOULD BE INSTALLED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE, N.F.P.A. DO NOT USE THIS FUEL AS A CLEANING AGENT. EMPTY CONTAINERS RETAIN SOME LIQUID AND VAPOR RESIDUES, AND HAZARD PRECAUTIONS MUST BE OBSERVED WHEN HANDLING EMPTIES.		
General Comments	USE OF ANY HYDROCARBON FUEL IN SPACES WITHOUT ADEQUATE VENTILATION MAY RESULT IN GENERATION OF HAZARDOUS LEVELS OF VAPOR AND/OR INADEQUATE OXYGEN LEVELS FOR BREATHING. PETROLEUM PRODUCTS SIMILAR TO THIS MATERIAL WERE FOUND TO BE MUTAGENIC IN "IN VITRO" AND "IN VIVO" TESTS. THE EXACT RELATIONSHIP BETWEEN THESE RESULTS AND POSSIBLE HUMAN EFFECTS IS NOT KNOWN. SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE MIXTURE ITSELF.		
- - - Note - - - Qualifications:			
EQ = Equal LT = Less Than GT = Greater Than			
AP = Approximately UK = Unknown TR = Trace			
N/AV = Not Available N/AP = Not Applicable N/DA = No Data Available			

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